

What is claimed is:

1. An apparatus for treating vascular aneurysms, comprising:

a radially expandable substantially cylindrical structure formed from a plurality of support members and defining a plurality of openings; and

at least one reactive material strand selectively integrated into the substantially cylindrical structure, the reactive material strand having a non-reacted state and a reacted state, wherein the reactive material strand in the reacted state is configured to restrict a flow of blood to an aneurysm.

2. The apparatus of claim 1, wherein the reactive material strand is an expandable polymer.

3. The apparatus of claim 1, wherein the reactive material strand is a hydrogel.

4. The apparatus of claim 1, wherein the reactive material strand is responsive to pH.

5. The apparatus of claim 1 wherein the reactive material strand applied to the support members defines the plurality of openings, wherein each opening has an area  $A$  when the reactive material strand is in a non-reacted state and has an area  $A'$  when the reactive material strand is in a reacted state, and wherein area  $A'$  is less than area  $A$ .

6. The apparatus of claim 5, wherein the area  $A'$  is at least about 20% less than the area  $A$ .

7. The apparatus of claim 1, wherein the reactive material strand is interwoven into the substantially cylindrical structure.

8. The apparatus of claim 1, wherein the reactive material strand is selectively positioned on one or more of the support members.

9. The apparatus of claim 8, wherein the reactive material strand is positioned on one or more of the support members in a radial orientation.
10. The apparatus of claim 8, wherein the reactive material strand is positioned on one or more of the support members in an axial orientation.
11. The apparatus of claim 8, wherein the reactive material strand is positioned on one or more of the support members in a radial and axial orientation.
12. The apparatus of claim 8, wherein the reactive material strand is wrapped around one or more of the support members.
13. The apparatus of claim 8, wherein the reactive material strand is adhesively bonded to one or more of the support members.
14. The apparatus of claim 8, wherein the reactive material strand has a variable diameter.
15. The apparatus of claim 8, wherein the reactive material strand has a variable tangential width.
16. The apparatus of claim 8, wherein the reactive material strand is intermittently applied to one or more of the support members.
17. The apparatus of claim 1, wherein each support member has a diameter  $D$  when the reactive material strand is in a non-reacted state and a diameter  $D'$  when the reactive material strand is in a reacted state, and wherein diameter  $D'$  is larger than diameter  $D$ .
18. The apparatus of claim 1 further comprising at least one therapeutic agent applied to at least one of the support members and the reactive material strand.

19. The apparatus of claim 18 wherein the therapeutic agent is selected from the group consisting of embolizing factors, anti-embolizing factors, anti-restenotic compounds, endothelial cell assays, compounds to promote endothelial cellular adhesion, and growth factors.

20. An apparatus for treating vascular aneurysms, comprising:

a radially expandable structure formed from a plurality of support members interwoven to form an interwoven structure and defining a plurality of openings; and

at least one reactive material strand interwoven into the interwoven structure, the reactive material strand having a non-reacted state and a reacted state, wherein the reactive material strand in the reacted state is configured to restrict a flow of blood to an aneurysm.

21. An apparatus for treating vascular aneurysms, comprising:

a radially expandable structure formed from a plurality of support members interwoven to form an interwoven structure and defining a plurality of openings; and

at least one reactive material strand wrapped around one or more support members, the reactive material strand having a non-reacted state and a reacted state, wherein the reactive material strand in the reacted state is configured to restrict a flow of blood to an aneurysm.

22. An apparatus for treating vascular aneurysms, comprising:

a radially expandable substantially cylindrical structure formed from a plurality of support members and defining a plurality of openings; and

at least one reactive material strand selectively interwoven into the substantially cylindrical structure, the reactive material having a non-reacted state and a reacted state,

wherein the reactive material strand in the reacted state is configured to restrict a flow of blood to an aneurysm.